Chapter 3

Movement By Mode

This chapter provides general planning and coordination guidance for unit movements within Continental United States (CONUS) and Outside Continental United States (OCONUS) by rail, highway, and air.

Section 1: CONUS

CONVOY MOVEMENTS

- 3-1. Within the United States, each state establishes rules, procedures, and laws that govern the use of public highways. Counties, cities, and municipalities establish and add restrictions for the use of their respective county or city routes. No vehicular movement that exceeds these legal limitations, or that subjects highway users to unusual hazards (including movement of explosives or other dangerous cargo), is made over public highways without the permission of the appropriate authority. Military convoys require approved convoy clearances and special hauling permits to travel on public highways and roads.
- 3-2. Units moving with highway-capable tactical vehicles located within a one-day (400 miles) road march of the MS or POE usually move via organic means. Highway-capable vehicles are those wheeled (not tracked) vehicles that can be driven or towed on the nation's highways. Requests from AC units are submitted through the installation UMC. Convoy clearance requests and special hauling permits may be created using TC-AIMS II.

Obtaining Convoy Clearance and Permits

- 3-3. A military convoy is defined as any group of six or more vehicles temporarily organized to operate as a column, with or without escort, proceeding together under a single commander. Ten or more vehicles, dispatched in less than groups of six, traveling the same route to the same destination, in an hour, are also a convoy. During mobilization or deployment, vehicle infiltration (movement of vehicles in units of less than convoy size on a public highway) is prohibited, therefore all movement through a mobilization station(MS) or power projection platform (PPP) or port is considered a convoy. Local policy may be more restrictive.
- 3-4. The Adjutant General of each State Area Command (STARC) appoints a Defense Movement Coordinator (DMC) who is the technical expert for military highway movement in the state. The DMC approves convoy movements, and coordinates and obtains permits for movement of oversize and overweight equipment. Routine convoy clearance requests are submitted to the DMC through two different channels, depending on the originator:
 - AC units submit their request to the installation UMC for coordination with the ITO and submission to the STARC DMC for approval.
 - Reserve component (RC) units submit their request through their appropriate chain of command or as directed to their home station (HS) state STARC DMC for coordination and approval.

3-5. Oversize or overweight vehicles are vehicles with sizes or weights exceeding the legal limitations prescribed by the state or local authorities in which the vehicles are operating. Movement of these vehicles require special approval by state and local authorities. All requests for special hauling permits (for oversize and overweight vehicles) are submitted through the same channels as convoy requests for coordination by the DMC and issuance of the necessary permits.

- 3-6. Vehicles operated in a convoy over public highways are marked with the appropriate signs and control numbers. Convoy vehicles display a blue flag on the lead vehicle, and a green flag on the trail vehicle unless otherwise specified by local regulations. Convoy vehicles use headlights on at all times. When halted on road shoulders, vehicles equipped with amber flashing lights or emergency systems also operate those lights. Units comply with other precautionary measures prescribed by state or local authorities.
- 3-7. The UMO coordinates with the UMC and higher headquarters to request convoy clearances and special hauling permits needed to move oversized or overweight vehicles with organic capability via highway. The UMC or higher headquarters submits a clearance request to the STARC DMC. The DMC is responsible for processing all convoy movements through the Mobilization Control (MOBCON) system. The DMC uses MOBCON to schedule road use, deconflict, and generate an approved Convoy Movement Order (CMO). The approved convoy clearance (CMO) is provided to the requesting UMC or headquarters for final issuance to the moving unit. The MOBCON generated CMO provides routing, a time table, a convoy clearance number, and secures routing and convoy visibility through all states involved

For more information on convoy operations see Appendix C, Convoy Operations.

RAIL MOVEMENTS

- 3-8. Responsibility for planning and executing rail movements is split between the unit and the ITO. The unit determines movement requirements and submits them to the BMC. The brigade movement officer (BMC) validates and consolidates the movement requirements prior to forwarding them to the supporting UMC.
- 3-9. The UMC creates rail load plans, using the rail load planning tool within TC-AIMS II, to identify the amount and type of rail assets needed to move unit equipment from the installation. After reviewing these plans, the ITO makes arrangements to have rail equipment spotted for loading to meet scheduled arrival dates in the TPFDD (based on dates specified by the unit). For those items of equipment designated to move by commercial rail, the ITO designates a load-out staging area on the installation. The unit utilizes fixed or hand-held bar code readers or RF-Tag readers to identify unit equipment that is being staged for rail loading. This information is then up-loaded to TC-AIMS II and sent to the In-transit Visibility (ITV) regional server, which provides it to the Global Transportation Network (GTN).
- 3-10. The UMC is responsible for ensuring coordination with the Facilities Engineer for obtaining sufficient BBPCT material. The UMC is responsible for inspecting and approving rail car loads in conjunction with the railroad inspector.
- 3-11. Units are responsible for preparing their equipment for rail loading. This includes packing, crating, banding, and blocking and bracing secondary loads. Units are also responsible for actual loading and tie-down of all equipment loaded. Units load railcars under the technical supervision of

the UMC. Units can generate automated rail load plans using TC-AIMS II. The ITO and the railway agent are ultimately responsible for approving all rail loads.

- 3-12. The ITO is the official liaison with MTMC and the railway agent. ITO personnel inspect all railcars for serviceability before units begin loading, and provide technical advice to units on blocking, bracing and tie down materiel. The unit provides the ITO with all required HAZMAT documentation.
- 3-13. Units can and should request assistance from the MTMC Operations Center at Fort Eustis, Virginia to assist in its preparation for movement. Unit movement teams from deployment support brigades are available to be dispatched to support unit preparation for movement. Units request MTMC Operations Center assistance through the UMC to the ITO or installation support. (See Chapter 4, paragraph 4-7.)
- 3-14. The ITO is responsible for obtaining rail cars to support unit movement and for preparing bills of lading. The ITO validates railcar requirements based on the shipping configuration of the items being shipped. Accurate UDL data is essential to this effort. With the data from the UDL, the ITO can prepare the bill of lading. Alternatively, the ITO can scan the military shipping labels (MSL) on the equipment to prepare the bill of lading.
- 3-15. The installation Director of Public Works (DPW) is normally responsible for providing units blocking and bracing materials needed to load military equipment on railcars. Units request these materials as far in advance as possible. The DPW also provides tools and assistance as required.
- 3-16. The preferred types of flatcars for unit moves are chain-equipped flatcars. These flatcars usually reduce the need for blocking and bracing material, and reduce loading times and line-haul transportation costs. Flatcars without side rails are easier to load, and wider vehicles more easily accommodated. The most common and expeditious method of loading vehicles on flatcars is the circus method. This method uses flatcars as a roadbed with spanners placed between cars. Tracked vehicles can be loaded without spanners when flatcars are equipped with short drawbars. After the loading sequence for the train has been determined, the vehicles are staged in order. All vehicles are loaded onto the rearmost car and moved forward to their assigned locations. The following is general rail movement planning guidance for units:
 - Fill equipment with fuel to capacities as directed.
 - Do not load ammunition and fuel, other than that fuel in vehicle fuel tanks, together on any unit vehicle of a rail movement.
 - Place warning placards on all sides of hazardous cargo loads. Do not stencil permanent placards on vehicles.
 - Load unit equipment in organic vehicles to the greatest extent practicable. Secure equipment loads properly.
 - Lock and seal sensitive arms, ammunition, and explosives in approved security containers. If railcar design permits, place security containers door-to-door to prevent unauthorized access to sensitive material. If container doors do not match, place an empty container against the loaded container to ensure there is a door-to-door match.
 - Take care to protect older series vehicles against intransit damage by rolling down side windows, lowering windshields, and turning mirrors inward. In newer series vehicles, (e.g., Palletized Load System, Heavy Equipment Transporter System, and Heavy Expanded Mobility Tactical Truck) the windows must remain up because of potential rain damage to

the electronic transmission and central tire inflation systems. Protect open window glass with plywood, cardboard, or a double layer of bubble wrap. Consider destination and the immediate necessity for mission-ready vehicles when weighing potential damage against protective material costs.

- Do not cover headlights, windshields, or mirrors with tape.
- 3-17. At the railhead, an officer is appointed to oversee rail loading operations. The railcar loading site includes a medical aid station and should include command and control facilities, warming tents, and other needed life support services.
- 3-18. Railcars must be off-loaded promptly at destination to allow them to return for further use and to avoid payment of demurrage or detention charges. Tariffs usually allow 48 hours free time for unloading commercial railcars. Units must remove blocking, dunnage, and banding from unloaded cars before releasing to the carrier.

For more information on rail operations see Appendix A, Railguards and Supercargoes.

AIR MOVEMENT

- 3-19. A key air movement planning consideration is whether the movement is tactical (combat) or nontactical (administrative). A nontactical movement is a movement of troops and equipment that is organized, loaded, and transported to expedite movement and conserve time and energy when no hostile interference is anticipated. It emphasizes economical use of the aircraft cabin space and maximum use of the allowable cabin load. Tactical movements are organized, loaded, and transported to aid accomplishment of a tactical mission. The unit arranges personnel, equipment, and supplies to support the tactical operation. Proper use of the aircraft allowable cabin load is still an important factor, but the commander's sequence of employment has priority. Army units plan for nontactical movements unless they are conducting operations that anticipate hostile reception.
- 3-20. For movements conducted under Joint Operations Planning and Execution System (JOPES), the TPFDD identifies the movement mode. It can plan movement for personnel and equipment by air, or the majority of personnel could move by air with the equipment moving by sea. In the latter case, the TPFDD synchronizes the air movement with equipment arrival at sea port of debarkation (SPOD).
- 3-21. USTRANSCOM, using its air component, the Air Mobility Command, is responsible for strategic airlift. Airlift assets can be military, commercial, or a combination of both. For JOPES moves, units may not be notified of the specific type of aircraft being used until after the unit line number (ULN) has been validated for movement. For non-JOPES moves, units request military airlift by submitting a SAAM request and/or other required documentation to the installation UMC.
- 3-22. There are several methods for determining aircraft sortic requirements. (A sortic is one mission by a single plane.) The Automated Air Load Planning System (AALPS) estimates the number of aircraft required to move the equipment and passengers. The AALPS database contains weight and dimensional information for Army and other Services' equipment. The planner can select from the equipment list within AALPS to determine aircraft requirements. AALPS can also generate load plans for individual aircraft. A second method for gross planning is to use total vehicle, cargo, and personnel weight to determine aircraft required. MACOM planners normally use this method to quickly approximate airlift requirements. A third option is the "type load" method. This method

recognizes that in most unit air movements, a sizeable number of the aircraft loads contain the same items of equipment and quantity of personnel. Preparing type loads simplifies planning.

- 3-23. When alerted for movement by strategic airlift, units use TC-AIMS II to develop their UDL by tailoring their organization equipment list (OEL). After the brigade reviews and approves the UDL, it transmits the information to higher headquarters.
- 3-24. The planner uses AALPS to plan the placement of personnel and each vehicle and item of equipment on the aircraft. TC AIMS II provides passenger and cargo manifests. Following is general guidance for air movement planning:
 - Provide a qualified driver for each prime mover.
 - Disperse equipment of the same type among as many different aircraft as possible to minimize the adverse impact should a particular aircraft abort.
 - Indicate the priority of movement by assignment of aircraft load numbers (e.g., load or chalk 2 would be the second to arrive at destination).
 - Load unit equipment and supplies, to include minimum essential equipment and supplies to accompany troops (TAT), into cargo vehicles moving by air, as secondary loads to the maximum extent possible.
 - Palletize all general cargo not loaded on vehicles on 463L pallets. Request issue of 463L pallets and nets from the ITO or other designated staff.
 - Have units prepare, document, and certify vehicles, HAZMAT, and other cargo for air movement
 - Ensure drivers have keys to unlock any unit equipment and containers (to include footlockers).
 - Load Prime movers and trailers on the same aircraft.
 - Apply an RF tag or an MSL with a bar coded TCN to unit equipment and cargo.
 - Ensure hazardous cargo certifiers are available until cargo is accepted for air movement.
- 3-25. For Joint Chief of Staff (JCS) directed unit movements, airlift requirements are registered and validated in the JOPES. A unit air movement requires careful load planning, selection of equipment, and personnel processing. It requires transported units to be convoyed, marshaled, received and inspected at APOE; and finally, outloaded to the aircraft. It is a complex process requiring careful planning, prudent execution, and attention to detail at every step.
- 3-26. The parent organization (or home station commander) from which units moving originate, is responsible for assigning, equipping, and training personnel to establish and operate the A/DACG. In CONUS, installations tasked in AR 5-9 and FORSCOM/ARNG Reg 55-1 are responsible for providing A/DACG support.
- 3-27. Using AALPS, the UMO prepares initial air load plans to identify the amount and type of strategic airlift assets required to execute the plan. The deploying unit (as coordinated by its UMO) is also responsible for:
 - Preparing cargo (weigh, mark, measure, load, secure, manifest, and compute and mark center of balance).
 - Preparing passenger manifest.
 - Assuring proper preparation and certification of hazardous cargo.
 - Preparing and certifying load plans.

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- Providing load teams.
- Loading, securing, and off-loading cargo.
- Providing shoring, dunnage, and vehicle operators.

COMMERCIAL TRUCK MOVEMENT

- 3-28. When a unit does not have enough organic assets to move its equipment, it coordinates with the installation UMC for movement of unit assets by commercial truck. The unit ensures cargo and equipment is properly marked and prepared for commercial transport.
- 3-29. When the shipment departs, the ITO scans the equipment and inputs the information into TC-AIMS II which provides the information to the local ITV server. The local ITV server provides the information to GTN.
- 3-30. When requested by the moving unit, the ITO arranges for commercial trucks to move the unit equipment to the POE. The unit ensures cargo and equipment is properly marked and prepared for transport.
- 3-31. The UMC coordinates with the ITO to make arrangements for commercial trucks. These services include shipment of sensitive items and hazardous materials

Section 2: OCONUS

CONVOY MOVEMENTS

3-33. Responsibility for highway regulation rests with commanders having area jurisdiction. The highway regulation mission is performed OCONUS by:

- The senior movement control element (MCE) in the theater.
- The transportation battalion in the corps rear area.
- The division transportation officer in the division rear area.
- The brigade S4 in the brigade rear area.

3-34. The commander who controls the area through which convoys move exercises highway regulation authority with its movement control elements. Each organization at corps and above includes a highway traffic headquarters that prioritizes and schedules convoy traffic on the road network within its area of operation. The division transportation officer, augmented by a division support movement control team (MCT), executes this mission for the division. Unit commanders request permission to use the division road space in accordance with the division highway regulation plan. Units use TC-AIMS II to create clearance and special hauling requests and forward them to an MCT. The MCT forwards the request to the appropriate authority. The approving authority takes action and returns the clearance to the unit.

Using TC AIMS II to Plan Convoy Movements

- 3-35. Convoy clearance requests are a form of message that details the itinerary of the move, the number and types of vehicles, and movement planning information. TC-AIMS II provides a convoy-planning tool that the S3, S4, or UMO uses to develop convoy movement schedules for unit vehicles. The TC AIMS tool provides for organizing vehicles into convoys, serials, and march units using standard command parameters for vehicle spacing and number of vehicles per march unit/serial. (The standard parameters identify convoy speeds (minimum and maximum) for the type vehicle and area of operation.)
- 3-36. March tables and convoy vehicle listings for the proposed convoy are an output of TC-AIMS II. If the convoy requires clearance to use the route selected, TC-AIMS II prepares a convoy clearance request. The unit sends the requests to the area highway regulation authority at the movement control headquarters. The movement control headquarters coordinates with host nation authorities to secure the route clearance. At OCONUS locations, a movement regulating team equipped with TC-AIMS II and AIT interrogators track convoy movements. During the convoy movement, convoy vehicles equipped with the Movement Tracking System (MTS) can transmit the convoy coordinates to the MTS control station.

For more information on convoy operations see Appendix C, Convoy Operations.

RAIL MOVEMENTS

3-37. Responsibility for planning and executing OCONUS rail movements is split between the units and the MCT. The units determine movement requirements and submit them to the BMC. The

BMC consolidates and validates the movement requirements and forwards them to the supporting MCT.

- 3-38. The MCT obtains railcars based on unit movement requirements. MCT personnel compute railcar requirements based on the shipping configuration of the items being shipped. Accurate UDL data is essential. The unit provides required HAZMAT documentation, and based on data from the UDL, the MCT prepares the bill of lading or the freight warrant. Alternatively, the MCT can scan the MSLs on the equipment to prepare the bill of lading or the freight warrant.
- 3-39. The MCT is the official liaison with the HN railway agent. MCT personnel inspect all railcars for serviceability before units begin loading, and provide technical advice to units on blocking, bracing and tie down materiel. The area support group (ASG) or base support battalion (BSB) is normally responsible for providing units blocking and bracing materials needed to load military equipment on railcars. Units request these materials as far in advance as possible. The ASG or BSB also provides tools and assistance as required.
- 3-40. Units are responsible for preparing their equipment for OCONUS rail loading. This includes packing, crating, banding, and blocking and bracing secondary loads. Units load railcars under the technical supervision of the MCT. (In extraordinary circumstances, TOE rail teams assist in loading railcars.) Units can generate automated rail load plans using TC-AIMS II. The MCT and the HN railway agent are ultimately responsible for approving all rail loads.
- 3-41. The preferred types of flatcars for unit moves are chain-equipped flatcars. This type flatcar usually reduces the need for blocking and bracing material, and reduces loading time and line-haul transportation costs. Flatcars without side rails are easier to load, as wider vehicles are more easily accommodated. The most common and expeditious method of loading vehicles on flatcars is the circus method. This method uses the flatcars as a roadbed with spanners placed between cars. Tracked vehicles can be loaded without spanners when flatcars are equipped with short drawbars. After the loading sequence for the train has been determined, the unit stages the vehicles in load sequence. All vehicles are loaded onto the rearmost car and moved forward to their assigned locations. The following is general rail movement planning guidance for units.
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 Mobility Tactical Truck) the windows must remain up because of potential rain damage to
 the electronic transmission and central tire inflation systems. Protect open window glass
 with plywood, cardboard, or a double layer of bubble wrap. Consider destination and the

- immediate necessity for mission-ready vehicles when weighing potential damage against protective material costs.
- Do not cover headlights, windshields, or mirrors with tape.
- 3-42. At the railhead, an officer is appointed to oversee rail loading operations. The rail-loading site includes a medical aid station and may include command and control facilities, warming tents, and other required life support services.
- 3-43. Railcars must be off-loaded promptly at destination to allow their return for further use and to avoid payment of demurrage or detention charges. Tariffs usually allow a limited number of hours free time for unloading commercial railcars. Remove blocking, dunnage, and banding from unloaded cars before releasing to the carrier.

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- 3-46. When moving from OCONUS to CONUS the UMO is responsible to have customs officials observe the packing process and attach a seal of approval. UMOs ensure that all equipment meets air shipment standards.
- 3-47. A key planning consideration is whether the movement is tactical (combat) or nontactical (administrative). This depends on the unit's mission in the theater. A nontactical movement is a movement of troops and equipment that is organized, loaded, and transported to expedite movement and conserve time and energy when no hostile interference is anticipated. It emphasizes economical use of the aircraft cabin space and maximum use of the allowable cabin load. Tactical movements are organized, loaded, and transported to aid accomplishment of a tactical mission. The unit arranges personnel, equipment, and supplies to support the tactical operation. Proper use of the aircraft allowable cabin load is still an important factor, but the commander's sequence of employment has priority. Army units plan for nontactical movements unless they are conducting operations that anticipate hostile reception.
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3-49. When alerted for movement by strategic airlift, units use TC-AIMS II to develop their UDL by tailoring their OEL. After the brigade reviews and approves the UDL, it transmits the information to higher headquarters.

3-50. The planner uses AALPS to plan the placement of personnel and each vehicle and item of equipment on the aircraft. TC AIMS II provides passenger and cargo manifests. Following is general guidance for air movement planning:

- Provide a qualified driver for each prime mover.
- Disperse equipment of the same type among as many different aircraft as possible to minimize the adverse impact should a particular aircraft abort.
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 accompany troops (TAT), into cargo vehicles moving by air, as secondary loads to the
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- Palletize all general cargo not loaded on vehicles on 463L pallets. Request issue of 463L pallets and nets from the MCT or other designated staff.
- Have units prepare, document, and certify HAZMAT, vehicles and other cargo for air movement.
- Ensure drivers have keys to unlock any unit equipment and containers (to include footlockers).
- Load Prime movers and trailers on the same aircraft.
- Apply an RF tag or an MSL with a bar coded TCN to unit equipment and cargo.

USING HOST NATION (HN) ASSETS

Using HN Assets

3-51. The United States has agreements with some countries that provide for coordinated tasking of HN transportation assets when US Army assets are not available to handle military cargo. When Army assets are not available, the MCT requests the senior movement control element to task HN assets under the provisions of these agreements.

Using Theater Support Contractor Assets

3-52. MTMC is responsible for contracting for and coordinating use of HN theater support contractor assets until a theater headquarters can assume the mission. The MCT identifies a commercial operator identified in the origin MCT's geographic area. Commitments flow through predetermined channels developed between the senior movement control element and the commercial carrier. If the commercial carrier cannot support the transportation request for any reason, it notifies the MCT immediately. The MCT attempts to establish an alternate delivery date that satisfies the consignee; selects another mode; requests HN assets; delays lower priority shipments; or requests assistance from its headquarters.